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(54) 【発明の名称】 特殊効果顔料組成物

(57) 【要約】

【課題】 存在安定性が高いことはもちろん、種々の塗料に配合して使用しても、塗膜の凝集破壊が発生するおそれが少ない特殊効果顔料組成物の提供を図る。

【解決手段】 特殊効果顔料、沈降防止剤及び非反応性有機溶剤を含有し、沈降防止剤は、エチレン酢ビ共重合体とエチレンアクリル酸共重合体との少なくとも何れか1種を使用した分散体である特殊効果顔料組成物。特殊効果顔料としては、無機系基材にコーティングを施した顔料を用いることができ、顔料が5~50重量%、エチレン酢ビ共重合体及びエチレンアクリル酸共重合体が固形分換算で0.1重量%以上2重量%未満配合する。

【特許請求の範囲】

【請求項1】特殊効果顔料、沈降防止剤及び非反応性有機溶剤を含有し、沈降防止剤は、エチレン酢ビ共重合体とエチレンアクリル酸共重合体との少なくとも何れか1種を使用した分散体であることを特徴とする特殊効果顔料組成物。

【請求項2】特殊効果顔料が無機系基材にコーティングを施した顔料であることを特徴とする請求項1記載の特殊効果顔料組成物。

【請求項3】沈降防止剤は、エチレン酢ビ共重合体とエチレンアクリル酸共重合体との少なくとも何れか1種に加えて、ポリアマイドワックス、スメクタイト粘土の有機誘導体及びシリカ類からなる群の少なくとも1種が固形分換算で2重量%未満使用されたことを特徴とする請求項1又は2記載の特殊効果顔料組成物。

【請求項4】顔料が5~50重量%、エチレン酢ビ共重合体及びエチレンアクリル酸共重合体が固形分換算で0.1重量%以上2重量%未満配合されたことを特徴とする請求項1~3の何れかに記載の特殊効果顔料組成物。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本願発明は、特殊効果顔料、即ち、光輝性や光の干渉による色の変化を有する顔料と、沈降防止剤と、非反応性有機溶剤とを配合した特殊効果顔料組成物の改良に関するものである。

【0002】

【従来の技術】マイカ系の顔料は以前から使われてきたが、近年、より光輝性のあるもの、より高彩度のもの、見る角度による色の変化が大きいもの等、さまざまな特殊効果顔料が開発され、またこれらを使った塗色が増えてきている。ここで述べられている特殊効果顔料とは市場の要望に応じて例えば、マイカに酸化チタンをコーティングした顔料、さらに各種着色顔料をコーティングしたもの、またマイカの代わりにアルミナやシリカを用いたもの、あるいは酸化チタンの代わりに又はその上に酸化鉄をコーティングしたもの、アルミにガラス層を被覆させさらに金属を被覆したもの、また、ガラスに金属を被覆したもの、アルミに樹脂や各種着色顔料をコーティングしたもの等があげられる。

【0003】通常の顔料は、樹脂や分散剤を加えてボールミルやサンドミルなどの分散機を用いて顔料を分散安定化させる必要があるのに対して、ここに規定する特殊効果顔料は、攪拌のみで溶剤中に安定に分散させることができることを特徴とする顔料である。

【0004】このような特殊効果顔料を使用した塗料は、自動車、単車、スポーツ用品、家電製品等に塗装されている。またこれらの補修塗装にも用いられている。例えば自動車補修用途に用いる塗料について述べると、2液型ウレタン系とラッカー系塗料がある。2液型ウレタンとは、使用時に主剤と硬化剤を配合して使用する塗料

であり、塗膜が造膜する過程で溶剤の蒸発と共に主剤中のポリオール成分と硬化剤中のイソシアネート成分が反応し熱硬化性の塗膜を形成する塗料である。これに対してラッカー系は、溶剤の蒸発によってのみ造膜する熱可塑性の塗膜を形成する塗料である。ラッカー系には、硝化綿ラッカー及びCABラッカーがありこれらと別に2液型ウレタンクリヤーを塗装して仕上げるように設計された1液型ベースコート用塗料がある。

【0005】このような1液型ベースコート用塗料に2液型ウレタンクリヤーを塗装して仕上げる方法は、硝化綿ラッカーやCABラッカーが有していた変色、割れ、剥離といった耐候性、物性面の欠点を改善する塗料及び塗装方法である。この、1液型ベースコート用塗料は、反応を伴わない熱可塑性の塗膜なので2液型ウレタン塗料に比べ塗膜の凝集力が弱く、膜厚や配合のバランスによっては、塗膜物性が低下するおそれがある。しかし、2液型ウレタン塗料が主剤と硬化剤を配合することから可使時間の制限があるのに対し、1液型ベースコート用塗料は可使時間の制限がない、また乾燥も早いなど作業性面での利点があることから広く使用されている。最近の自動車補修用塗料は、上記のような2液型ウレタン塗料や1液型ベースコート用塗料が主流である。また、プラスチックを用いたスポーツ用品や家電製品あるいは自動車やバイクの部品などには2液型ウレタン塗料がよく使用されるし、金属製品には、アクリル樹脂やポリエステル樹脂とメラミン樹脂を100~180℃程度の温度で硬化反応させる塗料なども使用される。

【0006】このように特殊効果顔料が使用される塗料には、多くの種類があり、特殊効果顔料も益々増えてくる状況から、特殊効果顔料ベース（原色）を各種塗料に共通で使用する方法が試みられてきている。例えば、酸化チタンをコーティングしたマイカ顔料の場合、顔料そのものを適時、粉体のままで使用する方法や、粉体を適当な溶剤で湿潤させて使用する等の方法がある。ところが、これらの方法では、配合誤差が大きくなりやすく、また、十分に攪拌するのに時間がかかってしまう。そこで、一般に、このマイカ顔料を非反応性溶剤に分散させ、長期保存でも沈殿が起らないように沈殿防止剤を予め加えておく方法がすでに用いられている。例えば、特公平6-8395では、

(A) パールマイカ顔料20~50重量%

(B) 酸化ポリエチレンワックス、ポリアマイドワックス、有機ベントナイト及びシリカからなる群より選ばれる沈降防止剤2~4重量% 及び

(C) 非反応性有機溶剤

からなるベース組成物が提案されている。

【0007】

【発明が解決しようとする課題】たしかに、予め顔料と沈降防止剤等を加えたベース組成物であって、それが任意の塗料に配合することができ、且つ塗膜としての性能

にも支障をきたさないものが得られるのであれば、市場にとって大変好都合な組成物ということができよう。しかし、現在までに知られているこの種の組成物には、未解決の問題点が残されていた。このベース(原色)に使用される沈殿防止剤については、従来は酸化ポリエチレンワックス(分散体)を主体として、ポリアミドワックス、有機ベントナイト、シリカを適時使用しており、十分な沈降防止効果を得るためには、それらの合計が固形分換算で2~4重量%であった。このようなベース(原色)を使用した場合、塗料の種類や各種原色の配合割合によっては、塗膜が凝集破壊しやすくなることが判明したのである。このような凝集破壊は、1液型ベースコート用塗料で発生しやすく、また2液型ウレタン塗料の場合でも他の原色との配合割合によっては発生しやすくなる。

【0008】

【課題を解決するための手段】本発明者らは、このような避けがたい塗膜性能不良を改善するため、鋭意検討を重ねた結果、特殊効果顔料、沈降防止剤及び非反応性有機溶剤からなる特殊効果顔料組成物において、沈降防止剤としての酸化ポリエチレンワックス(分散体)に代えて、エチレン酢ビ共重合体及びエチレンアクリル酸共重合体を使用した分散体を用いることによって、塗膜の凝集破壊が発生する弱点を改善することができた。

【0009】エチレン酢ビ共重合体としては、酢酸ビニル含有量5~15重量%、融点90~105℃のものが好適に使用される。またエチレンアクリル酸共重合体としては、酸価(mg KOH/g)40~120、融点90~110のものが好適に使用される。これらエチレン酢ビ共重合体、エチレンアクリル酸共重合体の添加量は、少なすぎると、沈降防止の効果が不十分であり、多すぎると、塗膜の凝集破壊の原因となるため、固形分換算で0.1重量%以上、4重量%未満、より望ましくは2重量%未満とする事が望ましい。

【0010】また使用する顔料の比重により沈降が早い場合には、ポリアミドワックスやス멕タイト粘土の有機誘導体、シリカ類等を固形分換算で2重量%未満加えることによって沈降を完全に防止することができることも併せて明らかにすることができた。なお、沈降防止剤の総量としては、固形分換算で4重量%未満とする事が望ましい。

【0011】本願発明に用いる顔料は、特殊効果顔料、即ち、光輝性や光の干渉による色の変化を有する顔料であり、無機系基材にコーティングを施した顔料である。基材並びにコーティング層の種類は、市場の要望に応じて種々変更して実施できるもので、基材としては、マイカ、アルミナ、シリカ、アルミ、ガラス等を例示でき、コーティング層としては、酸化チタン、酸化鉄、着色顔料、ガラス層、金属、樹脂、各種着色顔料等々を例示できる。より具体的には、マイカに酸化チタンをコーティ

ングした顔料、さらに各種着色顔料をコーティングしたもの、またマイカの代わりにアルミナやシリカを用いたもの、あるいは酸化チタンの代わりに又はその上に酸化鉄をコーティングしたもの、アルミにガラス層を被覆させさらに金属を被覆したもの、また、ガラスに金属を被覆したもの、アルミに樹脂や各種着色顔料をコーティングしたもの等を、あげることができる。この特殊効果顔料の配合量は、顔料の種類等によって種々変更して実施することができ、一般には、5~50重量%を配合する。

【0012】次に、有機溶剤は、通常の溶剤型塗料に使用される任意の非反応性溶剤を用いることができ、極性又は非極性の溶剤が使用される。例えば、キシレン、トルエン、ソルベッソ100などの芳香族炭化水素類、酢酸エチル、酢酸ブチル、セロソルブアセテート、プロピレングリコールモノメチルエーテルアセテート、プロピレングリコールモノエチルエーテルアセテートなどのエステル類、メチルイソブチルケトンなどのケトン類などを示すことができる。また、アルコール類も用いることができるが、ポリイソシアネートなどの硬化剤を用いる塗料系にあっては使用しないことが望ましい。この有機溶剤の配合量は、上記の顔料及び沈降防止剤の配合量の残部とすればよい。ただし、上記の顔料、沈降防止剤、有機溶剤の他、必要に応じて、消泡や塗膜のレベリング改善等に使用する添加剤を配合して実施することもできる。

【0013】

【実施例】(実施例 1)部は、以降すべて重量部を表す。トルエン20部、キシレン15部、酢酸ブチル30部を加えたものに10重量%のエチレン酢ビ共重合体のキシレン分散体(興洋化学株式会社製、マイクロフラット J-15)を5部加えて攪拌する。次に、パールグレイズSME-90-9(日本光研株式会社製、マイカに酸化チタンをコーティングしたパール光沢をもつ顔料)を30部加え均一になるまで攪拌する。

【0014】(実施例 2)トルエン20部、キシレン10部、酢酸ブチル30部を加えたものに10重量%のエチレン酢ビ共重合体のキシレン分散体(上記)を10部加えて攪拌する。次に、パールグレイズSME-90-9(上記)を30部加え均一になるまで攪拌する。

【0015】(実施例 3)トルエン20部、酢酸ブチル30部を加えたものに10重量%のエチレン酢ビ共重合体のキシレン分散体(上記)を20部加えて攪拌する。次に、パールグレイズSME-90-9(上記)を30部加え均一になるまで攪拌する。

【0016】(実施例 4)トルエン20部、キシレン15部、酢酸ブチル30部を加えたものに10重量%のエチレンアクリル酸共重合体のキシレン分散体(興洋化学株式会社製、マイクロフラット J-19)を5部加えて攪拌する。次に、パールグレイズSME-90-9(日本光研株式会社

製、マイカに酸化チタンをコーティングしたパール光沢をもつ顔料)を30部加え均一になるまで攪拌する。

【0017】(実施例 5) トルエン20部、キシレン10部、酢酸ブチル30部を加えたものに10重量%のエチレン酢ビ共重合体のキシレン分散体(上記)を5部加え更にエチレンアクリル酸共重合体のキシレン分散体(上記)を5部加えて攪拌する。次に、パールグレイズSME-90-9(上記)を30部加え均一になるまで攪拌する。

【0018】(実施例 6) トルエン20部、キシレン10部、酢酸ブチル35部を加えたものに5重量%のポリアミドのキシレン分散体(興洋化学株式会社製、マイクロフラット J-22)を10重量%加えて攪拌し、さらに10重量%のエチレン酢ビ共重合体のキシレン分散体(上記)を5重量%加えて攪拌する。次に、クリスタルスターGF1445(東洋アルミニウム株式会社製、フレーク状のガラス粉にチタンを被覆した光輝性顔料)を20部加え均一になるまで攪拌する。

【0019】(比較例 1) トルエン20部、キシレン10部、酢酸ブチル30部を加えたものに、10重量%の酸化ポリエチレンのキシレン分散体(楠本化学株式会社製、ディスポロン4200-10)10部を加えて攪拌する。次に、パールグレイズSME-90-9(上記)を30部加え均一になるまで攪拌する。

【0020】(比較例 2) トルエン20部、酢酸ブチル30部をくわえたものに、10重量%の酸化ポリエチレンのキシレン分散体(上記)20部を加えて攪拌する。次に、パールグレイズSME-90-9(上記)を30部加え均一になるまで攪拌する。

【0021】(比較例 3) トルエン15部、酢酸ブチル35部を加えたものに5重量%のポリアミドのキシレン分散体(興洋化学株式会社製、マイクロフラット J-22)を10重量%加えて攪拌し、さらに、10重量%の酸化ポリエチレンのキシレン分散体(上記)20部を加えて攪拌する。次に、クリスタルスターGF1445(上記)を20部加え均一になるまで攪拌する。

【0022】〈特殊効果顔料ベース(原色)の評価〉
付着性の評価

付着性の評価のために次の塗料を作成した。

【0023】1液ベースコート用クリアー塗料の作成
ヒタロイド1206(日立化成工業株式会社製、固形分50%、トルエン25%、キシレン25%)50部、酢酸ブチル30部、キシレン14.9部、BYK-300(ビッケミー社製、レベリング剤)0.1部にCAB381-0.5(イーストマンコダック社製)5部を加えCAB381-0.5が溶解するまで攪拌する。*

実施例の評価結果

	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5	実施例 6
付着性の 評価	25/25	25/25	20/25	25/25	25/25	25/25
保存安定 性の評価	良好	良好	良好	良好	良好	良好

*【0024】2液型ウレタンクリアー塗料の作成

主剤の作成。ヒタロイド3514(日立化成工業株式会社製、固形分60%、キシレン30%、酢酸ブチル10%)60部、トルエン9.7部、キシレン10部、酢酸ブチル20部、BYK-300 0.1部、ジブチルチンジラウレート(1%トルエン溶液 0.2%を配合し攪拌する。

【0025】硬化剤の作成。コロネートHX(日本ポリウレタン工業株式会社製、HMDIのメレート体)50部、キシレン30部、酢酸ブチル20部を配合し攪拌する。主剤と硬化剤は、主剤4部に対して硬化剤1部を配合して使用する。

【0026】試験片の作成と付着性の評価

自動車の塗装済み外板パネルを70×150mmのサイズに加工し、これをP800のサンドペーパーで研磨し、脱脂した後、以下の方法で塗装する。特殊効果顔料ベース(原色)1部に1液ベースコート用クリアー塗料1部、キシレン1部、酢酸ブチル1部を配合したものをエアースプレーにて約20μmの膜厚になるように塗装する。室温にて10分間乾燥させた後2液型ウレタンクリアー主剤4部に対して硬化剤1部を配合してエアースプレーにて約50μmの膜厚になるように塗装する。20分間放置後、60℃にて1時間乾燥させ、更に室温にて48時間放置する。この試験片を用いて付着性の評価を行う。付着性の評価は、JIS K 5400 8.5.2. の基盤目テープ法により行い、2mmマスのクロスカット25個のセロハンテープ剥離残数で評価し、その結果を表1及び表2に示す。

【0027】特殊効果顔料ベース(原色)の保存安定性の評価

作成した特殊効果顔料ベース(原色)を300mlのポリ容器に入れ、室温と50℃にて2ヶ月保存する。その後、塗料の外観とこの特殊効果顔料ベース(原色)を使用して塗装した塗膜を目視により観察し顔料の沈降により簡単にほぐれきらない沈殿物がないかどうか調べ、その結果を表1及び表2に示す。

【0028】以上、比較例1～3にあつては、付着性が低く、また比較例1にあつては、保存安定性も不良であるのに対して、実施例1～6にあつては、保存安定性がきわめて高く、また、良好な付着性を示す事が確認された。尚、付着性については、比較例の剥離した塗膜を目視にて確認したところ、特殊顔料含有塗膜の凝集破壊に起因する剥離が生じていることが確認された。

【0029】

【表1】

【0030】

【表2】

比較例の評価結果

	比較例 1	比較例 2	比較例 3
付着性の評価	8/25	0/25	0/25
保存安定性の評価	不良	良好	良好

【0031】

【発明の効果】本願発明に係る特殊効果顔料組成物は、
特殊効果顔料が良好に分散した状態を長期間維持できる
ものであり、任意の塗料に配合して使用できる。例え

10

ば、使用時に主剤と硬化剤を配合して使用する2液型ウレタン塗料、溶剤の蒸発によってのみ造膜する熱可塑性の塗膜を形成するラッカー系塗料等々、従来の技術の項目で示したような種々の塗料に配合して使用できる。特に、反応を伴わない熱可塑性の塗膜を形成する1液型のラッカー系塗料にあっても、塗膜の凝集破壊が発生する弱点を改善することができたものである。以上、本願発明は、保存安定性が高いことはもちろん、種々の塗料に配合して使用しても、塗膜の凝集破壊が発生するおそれが少ない特殊効果顔料組成物を提供することができたものである。

フロントページの続き

Fターム(参考) 4J002 BB061 BB081 CL002 DA096
DE146 DJ007 DJ016 DJ017
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4J037 AA17 AA18 AA24 AA26 AA29
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CB01 CB04 CB08 CB10 CC12
CC15 CC16 CC27 DD23 DD24
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FF15

JAPANESE

[JP,2002-309150,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE
INVENTION TECHNICAL PROBLEM MEANS EXAMPLE

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] The invention in this application relates to amelioration of the special effect pigment constituent which blended the special effect pigment, i.e., the pigment which has change of photoluminescent or the color by interference of light, the sedimentation inhibitor, and the nonresponsive organic solvent.

[0002]

[Description of the Prior Art] Although the pigment of a mica system has been used since before, various special effect pigments, such as what has photoluminescent more, the thing of high saturation, and what has a large change of the color by the include angle to see, are developed in recent years, and the paint color using these has been increasing. The request of a commercial scene is accepted with the special effect pigment described here. For example The pigment which coated the mica with titanium oxide, the thing which coated various color pigments further, Instead of the thing which used the alumina and the silica instead of the mica, or titanium oxide, moreover, or the thing which coated ferrous oxide on it, The thing which aluminum was made to cover a glass layer and covered the metal further and the thing which covered the metal on glass, the thing which coated aluminum with resin or various color pigments are raised.

[0003] The special effect pigment specified here to the usual pigment adding (resin) and a dispersant and carrying out distributed stabilization of the pigment using dispersers, such as a ball mill and a sand mill, is a pigment characterized by the ability to distribute stability in a solvent only by stirring.

[0004] The coating which used such a special effect pigment is painted by an automobile, a motorcycle, sporting goods, home electronics, etc. Moreover, it is used also for these touchups. For example, when the coating used for an automobile repair application is described, there are 2 liquid type urethane system and a lacquer system coating. 2 liquid type urethane is a coating which blends and uses base resin and a curing agent at the time of use, and is a coating which the polyol component in base resin and the isocyanate component in a curing agent react with evaporation of a solvent in the process in which a paint film carries out film formation, and forms a thermosetting paint film. On the other hand, a lacquer system is a coating which forms the thermoplastic paint film which carries out film formation only by evaporation of a solvent. There are a cellulose nitrate lacquer and CAB lacquer in a lacquer system, and there is a coating for 1 liquid type base coats designed so that 2 liquid type URETANKURIYA might be painted and finished apart from these in it.

[0005] The approach of painting and making such a coating for 1 liquid type base coats to 2 liquid type URETANKURIYA is the coating and the method of application which can improve the fault of the discoloration which a cellulose nitrate lacquer and CAB lacquer had, a crack, weatherability called exfoliation, and a physical-properties side. Since this coating for 1 liquid type base coats is a thermoplastic paint film without a reaction, compared with 2 liquid type urethane coating, its cohesive force of a paint film is weak, and it has a possibility that paint film physical properties may fall depending on the balance of thickness or combination. However, since 2 liquid type urethane coating

blends base resin and a curing agent, it is widely used to there being a limit of working life from the coating for 1 liquid type base coats not having a limit of working life, and there being an advantage in a workability side -- desiccation is also early. The latest coating for automobile repair has the above 2 liquid type urethane coatings and a coating for 1 liquid type base coats in use. Moreover, 2 liquid type urethane coating is often used for sporting goods and home electronics using plastics, or the components of an automobile or a motorbike, and the coating which carries out the hardening reaction of acrylic resin, polyester resin, and the melamine resin at the temperature of about 100-180 degrees C is used for metal goods.

[0006] Thus, there are many classes of the coatings for which a special effect pigment is used, and the approach of it being common to various coatings and using the special effect pigment base (primary color) from the situation whose special effect pigment also increases increasingly, has been tried. For example, in the case of the mica pigment which coated titanium oxide, there is the approach of carrying out humidity of the approach of using the pigment itself timely with fine particles and the fine particles, and using them with a suitable solvent. However, by these approaches, a combination error tending to become large and fully stirring will also take time amount. Then, generally, a nonresponsive solvent is made to distribute this mica pigment, and the approach the mothball also adds the suspending agent beforehand so that precipitate may not take place is already used. For example, at JP,6-8395,B, it is (A). 20 - 50 % of the weight (B) of pearl mica pigments 2 - 4 % of the weight of sedimentation inhibitors chosen from the group which consists of oxidization polyethylene wax, the poly AMAIDO wax, organic bentonite, and a silica And (C) The base constituent which consists of a nonresponsive organic solvent is proposed.

[0007]

[Problem(s) to be Solved by the Invention] To be sure, beforehand, it is a pigment and the base constituent which added the sedimentation inhibitor etc., and if what it can blend with the coating of arbitration and does not cause trouble to the engine performance as a paint film, either is obtained, it can be called a constituent very convenient for a commercial scene. However, the unsolved trouble was left behind to this kind known by current of constituent. In order to use the poly AMAIDO wax, organic bentonite, and a silica timely by making oxidization polyethylene wax (dispersing element) into a subject and to acquire sufficient sedimentation prevention effectiveness conventionally about the suspending agent used for this base (primary color), those sum totals were 2 - 4 % of the weight in solid content conversion. When such the base (primary color) was used, it became clear that it became easy to carry out cohesive failure of the paint film depending on the class of coating or the blending ratio of coal of various primary colors. It is easy to generate in the coatings for 1 liquid type base coats, and, also in the case of 2 liquid type urethane coating, becomes easy to generate such cohesive failure depending on the blending ratio of coal with other primary colors.

[0008]

[Means for Solving the Problem] this invention persons have improved the weak spot which the cohesive failure of a paint film generates in the special effect pigment constituent which consists of a special effect pigment, a sedimentation inhibitor, and a nonresponsive organic solvent by replacing with the oxidization polyethylene wax (dispersing element) as a sedimentation inhibitor, and using the dispersing element which used the ethylene vinyl acetate copolymer and the ethylene acrylic-acid copolymer, as a result of repeating examination wholeheartedly, in order to improve such poor paint film engine performance that is hard to avoid.

[0009] As an ethylene vinyl acetate copolymer, a thing with a % of the weight [of vinyl acetate contents] of 5 - 15 and a melting point of 90-105 degrees C is used suitably. Moreover, as an ethylene acrylic-acid copolymer, the thing of the acid numbers (mg KOH/g) 40-120 and the melting points 90-110 is used suitably. If there are, its effectiveness of sedimentation prevention is inadequate, and if there are too many additions of these ethylene vinyl acetate copolymer and an ethylene acrylic-acid copolymer, since they will cause cohesive failure of a paint film, it is desirable to consider as less than 2 % of the weight more desirably less than 4% of the weight 0.1% of the weight or more by solid content conversion. [too few]

[0010] moreover, the specific gravity of the pigment to be used -- case sedimentation is early -- the organic derivative of the poly AMAIDO wax or smectite clay, and silicas -- solid content conversion -- less than 2-% of the weight ***** -- by things, it was also able to combine that it could prevent completely and sedimentation was able to be clarified. In addition, as a total amount of a sedimentation inhibitor, ~~it is desirable to consider as less than 4-% of the weight by solid content conversion.~~

[0011] The pigment used for the invention in this application is a special effect pigment, i.e., the pigment which has change of photoluminescent or the color by interference of light, and is a pigment which performed coating to the inorganic system base material. In a base material list, the class of coating layer is changed variously, can be carried out according to the request of a commercial scene, can illustrate a mica, an alumina, a silica, aluminum, glass, etc. as a base material in it, and can illustrate **, such as titanium oxide, an iron oxide, a color pigment, a glass layer, a metal, resin, and various color pigments, as a coating layer in it. The pigment which more specifically coated the mica with titanium oxide, the thing which coated various color pigments further, Instead of the thing which used the alumina and the silica instead of the mica, or titanium oxide, moreover, or the thing which coated ferrous oxide on it, The thing which aluminum was made to cover a glass layer and covered the metal further and the thing which covered the metal on glass, the thing which coated aluminum with resin or various color pigments can be raised. According to the class of pigment etc., the loadings of this special effect pigment can be changed variously, can be carried out, and, generally blend 5 - 50 % of the weight.

[0012] Next, the nonresponsive solvent of the arbitration used for the usual solvent mold coating can be used for an organic solvent, and a polar or non-polar solvent is used. For example, ketones, such as ester, such as aromatic hydrocarbon, such as a xylene, toluene, and Solvesso 100, ethyl acetate, butyl acetate, a cellosolve acetate, propylene-glycol-monomethyl-ether acetate, and propylene glycol monoethyl ether acetate, and methyl isobutyl ketone, can be shown. Moreover, it is desirable to also use alcohols or not to use it, if it is in the coating system using curing agents, such as the poly isocyanate, although it can do. What is necessary is just to let the loadings of this organic solvent be the above-mentioned pigment and the remainder of the loadings of a sedimentation inhibitor. However, the additive used for defoaming, a leveling improvement of a paint film, etc. can also be blended and carried out if needed besides the above-mentioned pigment, a sedimentation inhibitor, and an organic solvent.

[0013]

[Example] (Example 1) The section expresses the weight section altogether henceforth. what added the toluene 20 section, the xylene 15 section, and the butyl-acetate 30 section -- the xylene dispersing element ([by Koyo Kagaku Co., Ltd.] micro flat J-15) of 10% of the weight of an ethylene vinyl acetate copolymer -- the five sections -- in addition, it stirs. Next, pearl gouy lathe SME-90-9 (pigment with the pearl gloss which coated . mica by Nihon Koken Kogyo Co., Ltd. with titanium oxide) is stirred until it becomes 30 ***** homogeneity.

[0014] (Example 2) what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate copolymer -- the ten sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0015] (Example 3) what added the toluene 20 section and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate copolymer -- the 20 sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0016] (Example 4) what added the toluene 20 section, the xylene 15 section, and the butyl-acetate 30 section -- the xylene dispersing element ([by Koyo Kagaku Co., Ltd.] micro flat J-19) of 10% of the weight of an ethylene acrylic-acid copolymer -- the five sections -- in addition, it stirs. Next, pearl gouy lathe SME-90-9 (pigment with the pearl gloss which coated . mica by Nihon Koken Kogyo Co., Ltd. with titanium oxide) is stirred until it becomes 30 ***** homogeneity.

[0017] (Example 5) what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate

copolymer -- the xylene dispersing element (above) of 5 ***** and also an ethylene acrylic-acid copolymer -- the five sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0018] (Example 6) To what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 35 section, the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-22) of 5% of the weight of poly AMAIDO is added 10% of the weight, and is stirred, and the xylene dispersing element (above) of 10 more% of the weight of an ethylene vinyl acetate copolymer is added 5% of the weight, and is stirred. Next, the crystal star GF 1445 (photoluminescent pigment which covered titanium to the glass powder of the shape of the Toyo Aluminium K.K. make and a flake) is stirred until it becomes 20 ***** homogeneity.

[0019] (Example of a comparison 1) The xylene dispersing element (Despa Ron 4200-10 by Kusumoto chemistry incorporated company) 10 section of .10 % of the weight oxidation polyethylene is added and stirred to what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0020] (Example of a comparison 2) The xylene dispersing element (above) 20 section of .10 % of the weight oxidation polyethylene is added and stirred to what added the toluene 20 section and the butyl-acetate 30 section. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0021] (Example of a comparison 3) To what added the toluene 15 section and the butyl-acetate 35 section, the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-22) of 5% of the weight of poly AMAIDO is added 10% of the weight, and is stirred, and the xylene dispersing element (above) 20 section of 10% of the weight of oxidation polyethylene is added and stirred further. Next, the crystal star GF 1445 (above) is stirred until it becomes 20 ***** homogeneity.

[0022] <Evaluation of the special effect pigment base (primary color)> The following coating was created for adhesive evaluation of evaluation adhesion.

[0023] It stirs until it adds the CAB381-0.5(Eastman Kodak Co. make) 5 section to the creation HITAROIDO 1206 (50% [of . solid content by Hitachi Chemical Co., Ltd.], toluene 25%, and xylene 25%) 50 section of the clear coating for 1 liquid base coats, the butyl-acetate 30 section, the xylene 14.9 section, and the BYK-300 (. RE ** ring agent made from big KEMI) 0.1 section and CAB 381-0.5 dissolves.

[0024] Creation of the creation base resin of 2 liquid type urethane clear coating. The HITAROIDO 3514 (60% [of . solid content by Hitachi Chemical Co., Ltd.], xylene 30%, 10% of butyl acetate) 60 section, the toluene 9.7 section, the xylene 10 section, the butyl-acetate 20 section, BYK-300 The 0.1 sections, 1% toluene solution of dibutyltin dilaurate 0.2% is blended and stirred.

[0025] Creation of a curing agent. The coronate HX(nurate object of .HMDI by Japan polyurethane industrial incorporated company)50 section, the xylene 30 section, and the butyl-acetate 20 section are blended and stirred. The curing agent 1 section is blended and used for base resin and a curing agent to the base resin 4 section.

[0026] Creation of a test piece and the painted skin panel of an adhesive evaluation automobile are processed into the size of 70x150mm, this is ground with the sandpaper of P800, and after degreasing, it paints by the following approaches. What blended the clear coating 1 section for 1 liquid base coats, the xylene 1 section, and the butyl-acetate 1 section with the special effect pigment base (primary color) 1 section is painted so that it may become about 20-micrometer thickness with an air spray. It paints so that the curing agent 1 section may be blended to the back 2 liquid type urethane clear base resin 4 section dried for 10 minutes at the room temperature and it may become about 50-micrometer thickness with an air spray. It is made to dry at 60 degrees C after neglect for 20 minutes for 1 hour, and is further left at a room temperature for 48 hours. Adhesive evaluation is performed using this test piece. Adhesive evaluation is JIS. K-5400 8.5.2. It carries out by the squares tape method, the number of cellophane tape ***** of 25 cross cuts of 2mm mass estimates, and the result is shown in Table 1 and 2.

[0027] The special effect pigment base (primary color) as for which the preservation stability of the special effect pigment base (primary color) carried out evaluation creation is put into a 300ml plastic

container, and it saves for two months at a room temperature and 50 degrees C. Then, it investigates whether there is any precipitate which observes the paint film painted using the appearance and this special effect pigment base (primary color) of a coating by viewing, and has not got loose simply by sedimentation of a pigment, and that result is shown in Table 1 and 2.

[0028] As mentioned above, if adhesion was low if it was in the examples 1-3 of a comparison, and preservation stability was in examples 1-6 to being poor in the example 1 of a comparison, it was checked that preservation stability shows good adhesion very highly. In addition, about adhesion, when the paint film in which the example of a comparison exfoliated was checked visually, it was checked that exfoliation resulting from the cohesive failure of a special pigment content paint film has arisen.

[0029]

[Table 1]

実施例の評価結果

	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5	実施例 6
付着性の 評価	25/25	25/25	20/25	25/25	25/25	25/25
保存安定 性の評価	良好	良好	良好	良好	良好	良好

[0030]

[Table 2]

比較例の評価結果

	比較例 1	比較例 2	比較例 3
付着性の 評価	8/25	0/25	0/25
保存安定 性の評価	不良	良好	良好

[0031]

[Effect of the Invention] A special effect pigment can maintain the condition of having distributed good for a long period of time, and can blend and use the special effect pigment constituent concerning the invention in this application for the coating of arbitration. For example, it can be used, being able to blend with various coatings as shown according to the item of **, such as 2 liquid type urethane coating which blends and uses base resin and a curing agent at the time of use, and a lacquer system coating which forms the thermoplastic paint film which carries out film formation only by evaporation of a solvent, and a Prior art. Even if it is in the 1 liquid type lacquer system coating which forms a thermoplastic paint film without a reaction especially, the weak spot which the cohesive failure of a paint film generates is improvable. As mentioned above, as well as preservation stability being high, even if it uses the invention in this application, blending with various coatings, it can offer a special effect pigment constituent with few possibilities that the cohesive failure of a paint film may occur.

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TECHNICAL FIELD

[Field of the Invention] The invention in this application relates to amelioration of the special effect pigment constituent which blended the special effect pigment, i.e., the pigment which has change of photoluminescent or the color by interference of light, the sedimentation inhibitor, and the nonresponsive organic solvent.

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PRIOR ART

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[0004] The coating which used such a special effect pigment is painted by an automobile, a motorcycle, sporting goods, home electronics, etc. Moreover, it is used also for these touchups. For example, when the coating used for an automobile repair application is described, there are 2 liquid type urethane system and a lacquer system coating. 2 liquid type urethane is a coating which blends and uses base resin and a curing agent at the time of use, and is a coating which the polyol component in base resin and the isocyanate component in a curing agent react with evaporation of a solvent in the process in which a paint film carries out film formation, and forms a thermosetting paint film. On the other hand, a lacquer system is a coating which forms the thermoplastic paint film which carries out film formation only by evaporation of a solvent. There are a cellulose nitrate lacquer and CAB lacquer in a lacquer system, and there is a coating for 1 liquid type base coats designed so that 2 liquid type URETANKURIYA might be painted and finished apart from these in it.

[0005] The approach of painting and making such a coating for 1 liquid type base coats to 2 liquid type URETANKURIYA is the coating and the method of application which can improve the fault of the discoloration which a cellulose nitrate lacquer and CAB lacquer had, a crack, weatherability called exfoliation, and a physical-properties side. Since this coating for 1 liquid type base coats is a thermoplastic paint film without a reaction, compared with 2 liquid type urethane coating, its cohesive force of a paint film is weak, and it has a possibility that paint film physical properties may fall depending on the balance of thickness or combination. However, since 2 liquid type urethane coating blends base resin and a curing agent, it is widely used to there being a limit of working life from the coating for 1 liquid type base coats not having a limit of working life, and there being an advantage in a workability side -- desiccation is also early. The latest coating for automobile repair has the above 2 liquid type urethane coatings and a coating for 1 liquid type base coats in use. Moreover, 2 liquid type urethane coating is often used for sporting goods and home electronics using plastics, or the components of an automobile or a motorbike, and the coating which carries out the hardening reaction of acrylic resin, polyester resin, and the melamine resin at the temperature of about 100-180 degrees C is used for

metal goods.

[0006] Thus, there are many classes of the coatings for which a special effect pigment is used, and the approach of it being common to various coatings and using the special effect pigment base (primary color) from the situation whose special effect pigment also increases increasingly, has been tried. For example, in the case of the mica pigment which coated titanium oxide, there is the approach of carrying out humidity of the approach of using the pigment itself timely with fine particles and the fine particles, and using them with a suitable solvent. However, by these approaches, a combination error tending to become large and fully stirring will also take time amount. Then, generally, a nonresponsive solvent is made to distribute this mica pigment, and the approach the mothball also adds the suspending agent beforehand so that precipitate may not take place is already used. For example, at JP,6-8395,B, it is (A). 20 - 50 % of the weight (B) of pearl mica pigments 2 - 4 % of the weight of sedimentation inhibitors chosen from the group which consists of oxidization polyethylene wax, the poly AMAIDO wax, organic bentonite, and a silica And (C) The base constituent which consists of a nonresponsive organic solvent is proposed.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] To be sure, beforehand, it is a pigment and the base constituent which added the sedimentation inhibitor etc., and if what it can blend with the coating of arbitration and does not cause trouble to the engine performance as a paint film, either is obtained, it can be called a constituent very convenient for a commercial scene. However, the unsolved trouble was left behind to this kind known by current of constituent. In order to use the poly AMAIDO wax, organic bentonite, and a silica timely by making oxidization polyethylene wax (dispersing element) into a subject and to acquire sufficient sedimentation prevention effectiveness conventionally about the suspending agent used for this base (primary color), those sum totals were 2 - 4 % of the weight in solid content conversion. When such the base (primary color) was used, it became clear that it became easy to carry out cohesive failure of the paint film depending on the class of coating or the blending ratio of coal of various primary colors. It is easy to generate in the coatings for 1 liquid type base coats, and, also in the case of 2 liquid type urethane coating, becomes easy to generate such cohesive failure depending on the blending ratio of coal with other primary colors.

[Translation done.]

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- 3.In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] this invention persons have improved the weak spot which the cohesive failure of a paint film generates in the special effect pigment constituent which consists of a special effect pigment, a sedimentation inhibitor, and a nonresponsive organic solvent by replacing with the oxidization polyethylene wax (dispersing element) as a sedimentation inhibitor, and using the dispersing element which used the ethylene vinyl acetate copolymer and the ethylene acrylic-acid copolymer, as a result of repeating examination wholeheartedly, in order to improve such poor paint film engine performance that is hard to avoid.

[0009] As an ethylene vinyl acetate copolymer, a thing with a % of the weight [of vinyl acetate contents] of 5 - 15 and a melting point of 90-105 degrees C is used suitably. Moreover, as an ethylene acrylic-acid copolymer, the thing of the acid numbers (mg KOH/g) 40-120 and the melting points 90-110 is used suitably. If there are, its effectiveness of sedimentation prevention is inadequate, and if there are too many additions of these ethylene vinyl acetate copolymer and an ethylene acrylic-acid copolymer, since they will cause cohesive failure of a paint film, it is desirable to consider as less than 2 % of the weight more desirably less than 4% of the weight 0.1% of the weight or more by solid content conversion. [too few]

[0010] moreover, the specific gravity of the pigment to be used -- case sedimentation is early -- the organic derivative of the poly AMAIDO wax or smectite clay, and silicas -- solid content conversion -- less than 2-% of the weight ***** -- by things, it was also able to combine that it could prevent completely and sedimentation was able to be clarified. In addition, as a total amount of a sedimentation inhibitor, it is desirable to consider as less than 4 % of the weight by solid content conversion.

[0011] The pigment used for the invention in this application is a special effect pigment, i.e., the pigment which has change of photoluminescent or the color by interference of light, and is a pigment which performed coating to the inorganic system base material. In a base material list, the class of coating layer is changed variously, can be carried out according to the request of a commercial scene, can illustrate a mica, an alumina, a silica, aluminum, glass, etc. as a base material in it, and can illustrate **, such as titanium oxide, an iron oxide, a color pigment, a glass layer, a metal, resin, and various color pigments, as a coating layer in it. The pigment which more specifically coated the mica with titanium oxide, the thing which coated various color pigments further, Instead of the thing which used the alumina and the silica instead of the mica, or titanium oxide, moreover, or the thing which coated ferrous oxide on it, The thing which aluminum was made to cover a glass layer and covered the metal further and the thing which covered the metal on glass, the thing which coated aluminum with resin or various color pigments can be raised. According to the class of pigment etc., the loadings of this special effect pigment can be changed variously, can be carried out, and, generally blend 5 - 50 % of the weight.

[0012] Next, the nonresponsive solvent of the arbitration used for the usual solvent mold coating can be used for an organic solvent, and a polar or non-polar solvent is used. For example, ketones, such as ester, such as aromatic hydrocarbon, such as a xylene, toluene, and Solvesso 100, ethyl acetate, butyl acetate, a cellosolve acetate, propylene-glycol-monomethyl-ether acetate, and propylene glycol

monoethyl ether acetate, and methyl isobutyl ketone, can be shown. Moreover, it is desirable to also use alcohols or not to use it, if it is in the coating system using curing agents, such as the poly isocyanate, although it can do. What is necessary is just to let the loadings of this organic solvent be the above-mentioned pigment and the remainder of the loadings of a sedimentation inhibitor. However, the additive used for defoaming, a leveling improvement of a paint film, etc. can also be blended and carried out if needed besides the above-mentioned pigment, a sedimentation inhibitor, and an organic solvent.

[Translation done.]

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EXAMPLE

[Example] (Example 1) The section expresses the weight section altogether henceforth. what added the toluene 20 section, the xylene 15 section, and the butyl-acetate 30 section -- the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-15) of 10% of the weight of an ethylene vinyl acetate copolymer -- the five sections -- in addition, it stirs. Next, pearl gouy lathe SME-90-9 (pigment with the pearl gloss which coated . mica by Nihon Koken Kogyo Co., Ltd. with titanium oxide) is stirred until it becomes 30 ***** homogeneity.

[0014] (Example 2) what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate copolymer -- the ten sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0015] (Example 3) what added the toluene 20 section and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate copolymer -- the 20 sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0016] (Example 4) what added the toluene 20 section, the xylene 15 section, and the butyl-acetate 30 section -- the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-19) of 10% of the weight of an ethylene acrylic-acid copolymer -- the five sections -- in addition, it stirs. Next, pearl gouy lathe SME-90-9 (pigment with the pearl gloss which coated . mica by Nihon Koken Kogyo Co., Ltd. with titanium oxide) is stirred until it becomes 30 ***** homogeneity.

[0017] (Example 5) what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section -- the xylene dispersing element (above) of 10% of the weight of an ethylene vinyl acetate copolymer -- the xylene dispersing element (above) of 5 ***** and also an ethylene acrylic-acid copolymer -- the five sections -- in addition, it stirs. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0018] (Example 6) To what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 35 section, the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-22) of 5% of the weight of poly AMAIDO is added 10% of the weight, and is stirred, and the xylene dispersing element (above) of 10 more% of the weight of an ethylene vinyl acetate copolymer is added 5% of the weight, and is stirred. Next, the crystal star GF 1445 (photoluminescent pigment which covered titanium to the glass powder of the shape of the Toyo Aluminium K.K. make and a flake) is stirred until it becomes 20 ***** homogeneity.

[0019] (Example of a comparison 1) The xylene dispersing element (Despa Ron 4200-10 by Kusumoto chemistry incorporated company) 10 section of .10 % of the weight oxidization polyethylene is added and stirred to what added the toluene 20 section, the xylene 10 section, and the butyl-acetate 30 section. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 ***** homogeneity.

[0020] (Example of a comparison 2) The xylene dispersing element (above) 20 section of .10 % of the weight oxidization polyethylene is added and stirred to what added the toluene 20 section and the butyl-acetate 30 section. Next, pearl glaze SME-90-9 (above) is stirred until it becomes 30 *****

homogeneity.

[0021] (Example of a comparison 3) To what added the toluene 15 section and the butyl-acetate 35 section, the xylene dispersing element (. [by Koyo Kagaku Co., Ltd.] micro flat J-22) of 5% of the weight of poly AMAIDO is added 10% of the weight, and is stirred, and the xylene dispersing element (above) 20 section of 10% of the weight of oxidization polyethylene is added and stirred further. Next, the crystal star GF 1445 (above) is stirred until it becomes 20 ***** homogeneity.

[0022] <Evaluation of the special effect pigment base (primary color)> The following coating was created for adhesive evaluation of evaluation adhesion.

[0023] It stirs until it adds the CAB381-0.5(Eastman Kodak Co. make) 5 section to the creation HITAROIDO 1206 (50% [of . solid content by Hitachi Chemical Co., Ltd.], toluene 25%, and xylene 25%) 50 section of the clear coating for 1 liquid base coats, the butyl-acetate 30 section, the xylene 14.9 section, and the BYK-300 (. RE ** ring agent made from big KEMI) 0.1 section and CAB 381-0.5 dissolves.

[0024] Creation of the creation base resin of 2 liquid type urethane clear coating. The HITAROIDO 3514 (60% [of . solid content by Hitachi Chemical Co., Ltd.], xylene 30%, 10% of butyl acetate) 60 section, the toluene 9.7 section, the xylene 10 section, the butyl-acetate 20 section, BYK-300 The 0.1 sections, 1% toluene solution of dibutyltin dilaurate 0.2% is blended and stirred.

[0025] Creation of a curing agent. The coronate HX(nurate object of .HMDI by Japan polyurethane industrial incorporated company)50 section, the xylene 30 section, and the butyl-acetate 20 section are blended and stirred. The curing agent 1 section is blended and used for base resin and a curing agent to the base resin 4 section.

[0026] Creation of a test piece and the painted skin panel of an adhesive evaluation automobile are processed into the size of 70x150mm, this is ground with the sandpaper of P800, and after degreasing, it paints by the following approaches. What blended the clear coating 1 section for 1 liquid base coats, the xylene 1 section, and the butyl-acetate 1 section with the special effect pigment base (primary color) 1 section is painted so that it may become about 20-micrometer thickness with an air spray. It paints so that the curing agent 1 section may be blended to the back 2 liquid type urethane clear base resin 4 section dried for 10 minutes at the room temperature and it may become about 50-micrometer thickness with an air spray. It is made to dry at 60 degrees C after neglect for 20 minutes for 1 hour, and is further left at a room temperature for 48 hours. Adhesive evaluation is performed using this test piece. Adhesive evaluation is JIS. K-5400 8.5.2. It carries out by the squares tape method, the number of cellophane tape ***** of 25 cross cuts of 2mm mass estimates, and the result is shown in Table 1 and 2.

[0027] The special effect pigment base (primary color) as for which the preservation stability of the special effect pigment base (primary color) carried out evaluation creation is put into a 300ml plastic container, and it saves for two months at a room temperature and 50 degrees C. Then, it investigates whether there is any precipitate which observes the paint film painted using the appearance and this special effect pigment base (primary color) of a coating by viewing, and has not got loose simply by sedimentation of a pigment, and that result is shown in Table 1 and 2.

[0028] As mentioned above, if adhesion was low if it was in the examples 1-3 of a comparison, and preservation stability was in examples 1-6 to being poor in the example 1 of a comparison, it was checked that preservation stability shows good adhesion very highly. In addition, about adhesion, when the paint film in which the example of a comparison exfoliated was checked visually, it was checked that exfoliation resulting from the cohesive failure of a special pigment content paint film has arisen.

[0029]

[Table 1]

実施例の評価結果

	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5	実施例 6
付着性の 評価	25/25	25/25	20/25	25/25	25/25	25/25
保存安定 性の評価	良好	良好	良好	良好	良好	良好

[0030]

[Table 2]

比較例の評価結果

	比較例 1	比較例 2	比較例 3
付着性の 評価	8/25	0/25	0/25
保存安定 性の評価	不良	良好	良好

[Translation done.]

DERWENT-ACC-NO: 2003-357695

DERWENT-WEEK: 200338

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TITLE: Special-**effect pigment** composition used for coating motor vehicle, comprises special-**effect pigment**, sedimentation inhibitor comprising **ethylene vinyl acetate** and/or **ethylene acrylic acid** copolymers, and organic solvent

PATENT-ASSIGNEE: ROCK PAINT KK[ROCKN]

PRIORITY-DATA: 2001JP-0111391 (April 10, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES MAIN-IPC		
JP 2002309150 A	October 23, 2002	N/A
005 C09D 017/00		

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP2002309150A	N/A	2001JP-0111391
April 10, 2001		

INT-CL (IPC): C08K009/00, C08L023/08 , C09C003/10 , C09D017/00

ABSTRACTED-PUB-NO: JP2002309150A

BASIC-ABSTRACT:

NOVELTY - A special-**effect pigment** composition comprises special-**effect pigment**, sedimentation inhibitor and a non-reaction property organic solvent.
The sedimentation inhibitor is a dispersion containing **ethylene vinyl acetate** copolymer and/or **ethylene acrylic acid** copolymer.

USE - For coating motor vehicle, sports article and domestic electrical

appliance. Also useful for repair coating.

ADVANTAGE - The state of dispersion of the special **effect pigment** is maintained over long period of time. Coating film with favorable adhesion is produced. The composition has excellent stability and formation of deposits on the film even after long term storage of the composition is prevented.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: SPECIAL **EFFECT PIGMENT** COMPOSITION COATING MOTOR VEHICLE COMPRISE

VINYL SPECIAL **EFFECT PIGMENT** SEDIMENT INHIBIT COMPRISE **ETHYLENE ACETATE ETHYLENE ACRYLIC ACID** COPOLYMER ORGANIC SOLVENT

DERWENT-CLASS: A82 G02

CPI-CODES: A04-G07; A04-G08A; A08-E01; A12-B01G; A12-T05; G03-B02D3;

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1]

018 ; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82 ;
R00835 G0566 G0022 D01 D11 D10 D12 D51 D53 D58 D63 D84 F41 F89 ;
H0011*R ; P1150

Polymer Index [1.2]

018 ; G0260*R G0022 D01 D12 D10 D26 D51 D53 ; R00326 G0044 G0033
G0022 D01 D02 D12 D10 D51 D53 D58 D82 ; H0011*R ; P1150 ; P0088

Polymer Index [1.3]

018 ; ND04 ; ND01 ; Q9999 Q7114*R ; Q9999 Q9234 Q9212 ; Q9999
Q9289

Q9212 ; N9999 N6917 ; N9999 N7147 N7034 N7023 ; Q9999 Q7681*R ;
Q9999 Q9052*R

Polymer Index [2.1]

018 ; P0635*R F70 D01 ; S9999 S1376

Polymer Index [2.2]

018 ; ND04 ; ND01 ; Q9999 Q7114*R ; Q9999 Q9234 Q9212 ; Q9999
Q9289

Q9212 ; N9999 N6917 ; N9999 N7147 N7034 N7023 ; Q9999 Q7681*R ;
Q9999 Q9052*R

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2003-094522